SMSY**Z**[1]WTGALITPCGPEEEKLPI**X**[1]PLSNSL**X**[2]RFHNKVYSTTSRSASLRAKKVTFDRVQV
LDAHYDSVLQDVKRAASKVSARLLTVEEACALTPPHSAKSRYGFGAKEVRSLSRRAVNHIR
SVWEDLLEDQHTPIDTTIMAKNEVFCIDPTKGGKKPARLIVYPDLGVRVCEKMALYDIAQK
LPKAIMGPSYGFQYSPAERVDFLLKAWGSKKDPMGFSYDTRCFDSTVTERDIRTEESIYQA
CSLPQEARTVIHSLTERLYVGGPMTNSKGQSCGYRRCRASGVFTTSMGNTMTCYIKALAAC
KAAGIVDPVMLVCGDDLVVISESQGNEEDERNLRAFTEAMTRYSAPPGDLPRPEYDLELIT
SCSSNVSVALDSRGRRRYFLTRDPTTP**X**[3]TRAAWETVRHSPVNSWLGNIIQYAPTIWVRMVI
MTHFFSILLAQDTLNQNLNFEMYGAVYSVNPLDLPAIIERLHGLEAFSLHTYSPHELSRVA
ATLRKLGAPPLRAWKSRARAVRASLIAQGARAAICGRYLFNWAVKTKLKLTPLPEASRLDL
SGWFTVGAGGGDIYHSVSHARPRLLLLCLLLLSVGVGIFLLPDR

FIG. 1

TCY[1]ATGTCY[2]TACY[3]CY[4]TGGACY[5]GGY[6]GCCY[7]TY[8]ATY[9]ACACCATGTGGGCCCGAAGAGG
AGAAGTTACCGATCAX[1]CCCTCTGAGTAATTCGCTCATX[2]CGGTTCCATAATAAGGTGTACT
CCACAACCTCGAGGAGTGCCTCTCTGAGGGCAAAGAAGGTGACTTTTGACAGGGTGCAGGT
GCTGGACGCACACTATGACTCAGTCTTGCAGGACGTTAAGCGGGCCGCCTCTAAGGTTAGT
GCGAGGCTCCTCACGGTAGAGGAAGCCTGCGCGCTGACCCCGCCCCACTCCGCCAAATCGC
GATACGGATTTGGGGCAAAAGAGGTGCGCAGCTTATCTAGGAGGGCCGTTAACCACATCCG
GTCCGTGTGGGAGGACCTCCTGGAAGACCAACATACCCCAATTGACACAACTATCATGGCT
AAAAATGAGGTGTTCTGCATTGATCCAACTAAAGGTGGGAAAAAGCCAGCTCGCCTCATCG
TATACCCCGACCTTGGGGTCAGGGTGTGCGAAAAGATGGCCCTCTATGACATCGCACAAAA
GCTTCCCAAAGCGATAATGGGGCCATCCTATGGGTTCCAATACTCTCCCGCAGAACGGGTC
GATTTCCTCCTCAAAGCTTGGGGAAGTAAGAAGGACCCAATGGGGTTCTCGTATGACACCC
GCTGCTTTGACTCAACCGTCACGGAGAGGGACATAAGAACAGAAGAATCCATATATCAGGC
TTGTTCTCTGCCTCAAGAAGCCAGAACTGTCATACACTCGCTCACTGAGAGACTTTACGTA
GGAGGGCCCATGACAAACAGCAAAGGGCAATCCTGCGGCTACAGGCGTTGCCGCGCAAGCG
GTGTTTTCACCACCAGCATGGGGAATACCATGACATGTTACATCAAAGCCCTTGCAGCGTG
TAAGGCTGCAGGGATCGTGGACCCTGTTATGTTGGTGTGTGGAGACGACCTGGTCGTCATC
TCAGAGAGCCAAGGTAACGAGGAGGACGAGCGAAACCTGAGAGCTTTCACGGAGGCTATGA
CCAGGTATTCCGCCCCTCCCGGTGACCTTCCCAGACCGGAATATGACTTGGAGCTTATAAC
ATCCTGCTCCTCAAACGTATCGGTAGCGCTGGACTCTCGGGGTCGCCGCCGGTACTTCCTA
ACCAGAGACCCTACCACTCCAX[3]TCACCCGAGCTGCTTGGGAAACAGTAAGACACTCCCCTG
TCAATTCTTGGCTGGGCAACATCATCCAGTACGCCCCCACAATCTGGGTCCGGATGGTCAT
AATGACTCACTTCTTCTCCATACTATTGGCCCAGGACACTCTGAACCAAAATCTCAATTTT
GAGATGTACGGGGCAGTATACTCGGTCAATCCATTAGACCTACCGGCCATAATTGAAAGGC
TACATGGGCTTGAAGCCTTTTCACTGCACACATACTCTCCCCACGAACTCTCACGGGTGGC
AGCAACTCTCAGAAAACTTGGAGCGCCTCCCCTTAGAGCGTGGAAGAGTCGGGCGCGTGCC
GTGAGAGCTTCACTCATCGCCCAAGGAGCGAGGGCGGCCATTTGTGGCCGCTACCTCTTCA
ACTGGGCGGTGAAAACAAAGCTCAAACTCACTCCATTGCCCGAGGCGAGCCGCCTGGATTT
ATCCGGGTGGTTCACCGTGGGCGCCGGCGGGGGCGACATTTATCACAGCGTGTCGCATGCC
CGACCCCGCCTATTACTCCTTTGCCTACTCCTACTTAGCGTAGGAGTAGGCATCTTTTTAC
TCCCCGATCGATGA

FIG. 2

MAPITAYSQQTRGLLGCIITSLTGRDKNQVEGEVQVVSTATQSFLATCVNGVCWTVYHGAG
SKTLAGPKGPITQMYTNVDQDLVGWQAPPGARSLTPCTCGSSDLYLVTRHADVIPVRRRGD
SRGSLLSPRPVSYLKGSSGGPLLCPSGHAVGIFRAAVCTRGVAKAVDFVPVESMETTMRSP
VFTDNSSPPAVPQTFQVAHLHAPTGSGKSTKVPAAYAAQGYKVLVLNPSVAATLGFGAYMS
KAHGIDPNIRTGVRTITTGAPVTYSTYGKFLADGGCSGGAYDIIICDECHSTDSTTILGIG
TVLDQAETAGARLVVLATATPPGSVTVPHPNIEEVALSNTGEIPFYGKAIPIEAIRGGRHL
IFCHSKKKCDELAAKLSGLGINAVAYYRGLDVSVIPTIGDVVVVATDALMTGYTGDFDSVI
DCNTCVTQTVDFSLDPTFTIETTTVPQDAVSRSQRRGRTGRGRMGIYRFVTPGERPSGMFD
SSVLCECYDAGCAWYELTPAETSVRLRAYLNTPGLPVCQDHLEFWESVFTGLTHIDAHFLS
QTKQAGDNFPYLVAYQATVCARAQAPPPSWDQMWKCLIRLKPTLHGPTPLLYRLGAVQNEV
TLTHPITKYIMACMSADLEVVTSTWVLVGGVLAALAAYCLTTGSVVIVGRIILSGRPAIVP
DREFLYQEFDEMEECASHLPYIEQGMQLAEQFKQKALGLLQTATKQAEAAAPVVESKWRAL
ETFWAKHMWNFISGIQYLAGLSTLPGNPAIASLMAFTASITSPLTTQSTLLFNILGGWVAA
QLAPPSAASAFVGAGIAGAAVGSIGLGKVLVDILAGYGAGVAGALVAFKVMSGEMPSTEDL
VNLLPAILSPGALVVGVVCAAILRRHVGPGEGAVQWMNRLIAFASRGNH**X**[2]SPTHYVPESDA
AARVTQILSSLTITQLLKRLHQWINEDCSTPCSGSWLRDVWDWICTVLTDFKTWLQSKLLP
QLPGVPFFSCQRGYKGVWRGDGIMQTTCPCGAQITGHVKNGSMRIVGPKTCSNTWHGTFPI
NAYTTGPCTPSPAPNYSRALWRVAAEEYVEVTRVGDFHYVTGMTTDNVKCPCQVPAPEFFT
EVDGVRLHRYAPACRPLLREEVTFQVGLNQYLVGSQLPCEPEPDVAVLTSMLTDPSHITAE
TAKRRLARGSPPSLASSSAIQLSAPSLKATCTTHHVSPDADLIEANLLWRQEMGG**X**[1]ITRVE
SENKVVVLDSFDPLRAEEDEREVSVPAEILRKSKKFPAAMPIWARPDYNPPLLESWKDPDY
VPPVVHGCPLPPIKAPPIPPPRRKRTVVLTESSVSSALAELATKTFGSSESSAVDSGTATA
LPDQASDDGDKGSDVESYSSMPPLEGEPGDPDLSDGSWSTVSEEASEDVVCC

FIG. 3

ATGGCGCCCATCACGGCCTACTCCCAACAGACGCGGGGCCTACTTGGTTGCATCATCACTA
GCCTTACAGGCCGGGACAAGAACCAGGTCGAGGGAGAGGTTCAGGTGGTTTCCACCGCAAC
ACAATCCTTCCTGGCGACCTGCGTCAACGGCGTGTGTTGGACCGTTTACCATGGTGCTGGC
TCAAAGACCTTAGCCGGCCCAAAGGGGCCAATCACCCAGATGTACACTAATGTGGACCAGG
ACCTCGTCGGCTGGCAGGCGCCCCCCGGGGCGCGTTCCTTGACACCATGCACCTGTGGCAG
CTCAGACCTTTACTTGGTCACGAGACATGCTGACGTCATTCCGGTGCGCCGGCGGGGCGAC
AGTAGGGGGAGCCTGCTCTCCCCCAGGCCTGTCTCCTACTTGAAGGGCTCTTCGGGTGGTC
CACTGCTCTGCCCTTCGGGGCACGCTGTGGGCATCTTCCGGGCTGCCGTATGCACCCGGGG
GGTTGCGAAGGCGGTGGACTTTGTGCCCGTAGAGTCCATGGAAACTACTATGCGGTCTCCG
GTCTTCACGGACAACTCATCCCCCCCGGCCGTACCGCAGACATTTCAAGTGGCCCACCTAC
ACGCTCCCACTGGCAGCGGCAAGAGTACTAAAGTGCCGGCTGCATATGCAGCCCAAGGGTA
CAAGGTGCTCGTCCTCAATCCGTCCGTTGCCGCTACCTTAGGGTTTGGGGCGTATATGTCT
AAGGCACACGGTATTGACCCCAACATCAGAACTGGGGTAAGGACCATTACCACAGGCGCCC
CCGTCACATACTCTACCTATGGCAAGTTTCTTGCCGATGGTGGTTGCTCTGGGGGCGCTTA
TGACATCATAATATGTGATGAGTGCCATTCAACTGACTCGACTACAATCTTGGGCATCGGC
ACAGTCCTGGACCAAGCGGAGACGGCTGGAGCGCGGCTTGTCGTGCTCGCCACCGCTACGC
CTCCGGGATCGGTCACCGTGCCACACCCAAACATCGAGGAGGTGGCCCTGTCTAATACTGG
AGAGATCCCCTTCTATGGCAAAGCCATCCCCATTGAAGCCATCAGGGGGGGAAGGCATCTC
ATTTTCTGTCATTCCAAGAAGAAGTGCGACGAGCTCGCCGCAAAGCTGTCAGGCCTCGGAA
TCAACGCTGTGGCGTATTACCGGGGGCTCGATGTGTCCGTCATACCAACTATCGGAGACGT
CGTTGTCGTGGCAACAGACGCTCTGATGACGGGCTATACGGGCGACTTTGACTCAGTGATC
GACTGTAACACATGTGTCACCCAGACAGTCGACTTCAGCTTGGATCCCACCTTCACCATTG
AGACGACGACCGTGCCTCAAGACGCAGTGTCGCGCTCGCAGCGGCGGGGTAGGACTGGCAG
AGGTAGGATGGGCATCTACAGGTTTGTGACTCCGGGAGAACGGCCCTCGGGCATGTTCGAT
TCCTCGGTCCTGTGTGAGTGCTATGACGCGGGCTGTGCTTGGTACGAGCTCACCCCCGCCG
AGACCTCGGTTAGGTTGCGGGCCTACCTGAACACACCAGGGTTGCCCGTTTGCCAGGACCA
CCTGGAGTTCTGGGAGAGTGTCTTCACAGGCCTCACCCACATAGATGCACACTTCTTGTCC
CAGACCAAGCAGGCAGGAGACAACTTCCCCTACCTGGTAGCATACCAAGCCACGGTGTGCG
CCAGGGCTCAGGCCCCACCTCCATCATGGGATCAAATGTGGAAGTGTCTCATACGGCTGAA
ACCTACGCTGCACGGGCCAACACCCTTGCTGTACAGGCTGGGAGCCGTCCAAAATGAGGTC
ACCCTCACCCACCCCATAACCAAATACATCATGGCATGCATGTCGGCTGACCTGGAGGTCG
TCACTAGCACCTGGGTGCTGGTGGGCGGAGTCCTTGCAGCTCTGGCCGCGTATTGCCTGAC
AACAGGCAGTGTGGTCATTGTGGGTAGGATTATCTTGTCCGGGAGGCCGGCTATTGTTCCC
GACAGGGAGTTTCTCTACCAGGAGTTCGATGAAATGGAAGAGTGCGCCTCGCACCTCCCTT
ACATCGAGCAGGGAATGCAGCTCGCCGAGCAATTCAAGCAGAAAGCGCTCGGGTTACTGCA
AACAGCCACCAAACAAGCGGAGGCTGCTGCTCCCGTGGTGGAGTCCAAGTGGCGAGCCCTT
GAGACATTCTGGGCGAAGCACATGTGGAATTTCATCAGCGGGATACAGTACTTAGCAGGCT
TATCCACTCTGCCTGGGAACCCCGCAATAGCATCATTGATGGCATTCACAGCCTCTATCAC
CAGCCCGCTCACCACCCAAAGTACCCTCCTGTTTAACATCTTGGGGGGGTGGGTGGCTGCC
CAACTCGCCCCCCCCAGCGCCGCTTCGGCTTTCGTGGGCGCCGGCATCGCCGGTGCGGCTG
TTGGCAGCATAGGCCTTGGGAAGGTGCTTGTGGACATTCTGGCGGGTTATGGAGCAGGAGT
GGCCGGCGCGCTCGTGGCCTTCAAGGTCATGAGCGGCGAGATGCCCTCCACCGAGGACCTG
GTCAATCTACTTCCTGCCATCCTCTCTCCTGGCGCCCTGGTCGTCGGGGTCGTGTGTGCAG
CAATACTGCGTCGACACGTGGGTCCGGGAGAGGGGGCTGTGCAGTGGATGAACCGGCTGAT
AGCGTTCGCCTCGCGGGGTAATCATG**X**[2]TTCCCCCACGCACTATGTGCCTGAGAGCGACGCC
GCAGCGCGTGTTACTCAGATCCTCTCCAGCCTTACCATCACTCAGCTGCTGAAAAGGCTCC
ACCAGTGGATTAATGAAGACTGCTCCACACCGTGTTCCGGCTCGTGGCTAAGGGATGTTTG
GGACTGGATATGCACGGTGTTGACTGACTTCAAGACCTGGCTCCAGTCCAAGCTCCTGCCG

FIG. 4A

CAGCTACCGGGAGTCCCTTTTTTCTCGTGCCAACGCGGGTACAAGGGAGTCTGGCGGGGAG
ACGGCATCATGCAAACCACCTGCCCATGTGGAGCACAGATCACCGGACATGTCAAAAACGG
TTCCATGAGGATCGTCGGGCCTAAGACCTGCAGCAACACGTGGCATGGAACATTCCCCATC
AACGCATACACCACGGGCCCCTGCACACCCTCTCCAGCGCCAAACTATTCTAGGGCGCTGT
GGCGGGTGGCCGCTGAGGAGTACGTGGAGGTCACGCGGGTGGGGGATTTCCACTACGTGAC
GGGCATGACCACTGACAACGTAAAGTGCCCATGCCAGGTTCCGGCTCCTGAATTCTTCACG
GAGGTGGACGGAGTGCGGTTGCACAGGTACGCTCCGGCGTGCAGGCCTCTCCTACGGGAGG
AGGTTACATTCCAGGTCGGGCTCAACCAATACCTGGTTGGGTCACAGCTACCATGCGAGCC
CGAACCGGATGTAGCAGTGCTCACTTCCATGCTCACCGACCCCTCCCACATCACAGCAGAA
ACGGCTAAGCGTAGGTTGGCCAGGGGGTCTCCCCCCTCCTTGGCCAGCTCTTCAGCTATCC
AGTTGTCTGCGCCTTCCTTGAAGGCGACATGCACTACCCACCATGTCTCTCCGGACGCTGA
CCTCATCGAGGCCAACCTCCTGTGGCGGCAGGAGATGGGCGGGA$\mathbf{X}^{1}$CATCACCCGCGTGGAG
TCGGAGAACAAGGTGGTAGTCCTGGACTCTTTCGACCCGCTTCGAGCGGAGGAGGATGAGA
GGGAAGTATCCGTTCCGGCGGAGATCCTGCGGAAATCCAAGAAGTTCCCCGCAGCGATGCC
CATCTGGGCGCGCCCGGATTACAACCCTCCACTGTTAGAGTCCTGGAAGGACCCGGACTAC
GTCCCTCCGGTGGTGCACGGGTGCCCGTTGCCACCTATCAAGGCCCCTCCAATACCACCTC
CACGGAGAAAGAGGACGGTTGTCCTAACAGAGTCCTCCGTGTCTTCTGCCTTAGCGGAGCT
CGCTACTAAGACCTTCGGCAGCTCCGAATCATCGGCCGTCGACAGCGGCACGGCGACCGCC
CTTCCTGACCAGGCCTCCGACGACGGTGACAAAGGATCCGACGTTGAGTCGTACTCCTCCA
TGCCCCCCCTTGAGGGGGAACCGGGGGACCCCGATCTCAGTGACGGGTCTTGGTCTACCGT
GAGCGAGGAAGCTAGTGAGGATGTCGTCTGCTGC

FIG. 4B

GCCTCCAAAGCCGCCCTCATTGAGGAAGGGCAGCGGATGGCGGAGATGCTCAAATCTAAGATACAAGGCCTCCT
ACAACAGGCCACAAGGCAAGCTCAAGACATACAGCCAGCTATACAGTCATCATGGCCCAAGCTTGAACAATTTT
GGGCCAAACACATGTGGAACTTCATCAGTGGTATACAGTACCTAGCAGGACTCTCCACCCTACCGGGAAATCCT
GCAGTAGCATCAATGATGGCTTTTAGCGCCGCGCTGACTAGCCCACTACCCACCAGCACCACCATCCTCTTGAA
CATCATGGGAGGATGGTTGGCCTCTCAGATTGCCCCCCCTGCCGGAGCCACTGGCTTCGTTGTCAGTGGTCTAG
TGGGGGCGGCCGTCGGAAGCATAGGCCTGGGTAAGATACTGGTGGACGTTTTGGCCGGGTACGGCGCAGGCATT
TCAGGGGCCCTCGTAGCTTTTAAGATCATGAGCGGCGAGAAGCCCACGGTAGAAGACGTTGTGAATCTCCTGCC
TGCTATTCTGTCTCCTGGTGCGTTGGTAGTGGGAGTCATCTGTGCAGCAATCCTGCGTCGACACGTGGGTCCGG
GAGAGGGGGCTGTGCAGTGGATGAACCGGCTGATAGCGTTCGCCTCGCGGGGTAATCAT**GCT**TCCCCCACGCAC
TATGTGCCTGAGAGCGACGCCGCAGCGCGTGTTACTCAGATCCTCTCCAGCCTTACCATCACTCAGCTGCTGAA
AAGGCTCCACCAGTGGATTAATGAAGACTGCTCCACACCGTGT

FIG. 5A

ASKAALIEEGQRMAEMLKSKIQGLLQQATRQAQDIQPAIQSSWPKLEQFWAKHMWNFISGIQYLAGLSTLPGNP
AVASMMAFSAALTSPLPTSTTILLNIMGGWLASQIAPPAGATGFVVSGLVGAAVGSIGLGKILVDVLAGYGAGI
SGALVAFKIMSGEKPTVEDVVNLLPAILSPGALVVGVICAAILRRHVGPGEGAVQWMNRLIAFASRGNHASPTH
YVPESDAAARVTQILSSLTITQLLKRLHQWINEDCSTPC

FIG. 5B